National Report on Human Exposure to Environmental Chemicals

Spotlight on Bisphenol A and 4-*tertiary*-Octylphenol

Bisphenol A (BPA) and 4-*teriary*-octylphenol (4-*t*-OP) are industrial chemicals. BPA is used to make polycarbonate plastics. These plastics are found in many products such as refillable beverage containers, protective linings in food cans, compact disks, plastic dinnerware, impact-resistant safety equipment, and epoxy resins. BPA is also used in the production of materials found in dental composites and sealants. BPA is not found in softer, more flexible products such as single-serving water bottles.

The chemical 4-*t*-OP is formed during the process of making surface-active agents, known as surfactants, which are used in detergents and pesticides.

How People Can Be Exposed to BPA and 4-*t*-OP

Because these two chemicals are used to make a wide variety of products, people may be exposed 1) when the chemicals are produced, used, or disposed of; 2) when the chemicals migrate into food; or 3) when people come into contact with or breathe in other consumer products that contain these chemicals.

How BPA and 4-*t*-OP May Affect People's Health

In laboratory animal testing, BPA and 4-*t*-OP have been shown to have hormone-like effects on the reproductive system. At high doses, BPA has estrogen-like effects on the uterus and prostate glands of experimental animals. At various doses, 4-*t*-OP has been shown to cause testicular malformations in male rats.

Scientists continue to debate whether effects could possibly occur in people who are exposed to these chemicals. More research is needed to assess the human health effects of exposure to these chemicals.

Levels of BPA and 4-*t*-OP in the U.S. Population

In 2007, the Centers for Disease Control and Prevention (CDC) published results of its analyses of urine samples obtained from 2,517 people aged 6 years and older who took part in CDC's National Health and Nutrition Examination Survey (NHANES) from 2003 through 2004.

BPA

- CDC scientists detected BPA in the urine of nearly 93% of the people tested, a finding that indicates widespread exposure to BPA in the U.S. population.
- Females had significantly higher levels of BPA in their urine than males. Children had the highest levels, followed by teens and adults.
- Non-Hispanic blacks and non-Hispanic whites had higher levels of BPA than Mexican Americans.
- People with the lowest household incomes had higher levels of BPA than people in the highest income bracket.

4-*t*-OP

- CDC scientists detected 4-*t*-OP in the urine of nearly 57.4% of the people tested.

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The Centers for Disease Control and Prevention (CDC) protects people's health and safety by preventing and controlling diseases and injuries; enhances health decisions by providing credible information on critical health issues; and promotes healthy living through strong partnerships with local, national, and international organizations.